

Dispelling the \sqrt{L} myth for the High-Luminosity LHC

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Extrapolations of sensitivity to new interactions and standard model parameters inform the particle physics community about the potential of future upgrade programmes and colliders. Statistical considerations based on inclusive quantities and established analysis strategies typically give rise to a sensitivity scaling with the square root of the luminosity, \sqrt{L} . This suggests only a mild sensitivity improvement for the LHC's high-luminosity phase (HL-LHC), compared to the presently available LHC data. We provide clear evidence that the \sqrt{L} scaling for the HL-LHC is overly conservative and unrealistic, using representative analyses in top quark, Higgs boson and electroweak gauge boson phenomenology.

Alternate track

1. Higgs Physics

I read the instructions above

Yes

Primary authors: BELVEDERE, Alberto (Deutsches Elektronen-Synchrotron (DE)); ENGLERT, Christoph; SPAN-
NOWSKY, Michael (University of Durham (GB)); KOGLER, Roman (DESY (DE))

Presenter: KOGLER, Roman (DESY (DE))

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